ABSTRACT OF THE DISCLOSURE

Embedded in a transport assembly are arrays of microelectromechanical sensors and actuators for detecting and propelling an object. A controller having defined therein local computational agents and a global controller controls the array of sensors and actuators. The global controller provides global operating constraints to the local computational agents. The global operating constraints are developed using an approximate specification of system behavior based on simplified assumptions of an idealized system as well as limited sensor information aggregated from the array of sensors. The local computational agents compute a desired local actuator response using sensor information from a localized grouping of sensor units. To improve the accuracy of the global operating constraints, the local computational agents reduce differences between a global actuator response, computed using the global operating constraints, and the desired local actuator response. In addition, the local computational agents reduce the correlation among different parts of the transport assembly by reducing differences between actuator responses of neighborhoods of local computational agents.